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HOUSEKEEPERS' CHAT

Monday, February 28, 1938

(FOR BROADCAST USE ONLY)

Subject: "VITAMINS AND CODLIVER OIL." Facts from the Federal Food and Drug Administration, United States Department of Agriculture.

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Friends, we have in our midst a listener with a large bump of curiosity. He is curious, he says, to find out how the Food and Drug Administration tests codliver oil.

"Some time ago," he writes, "I heard a speaker on the radio say that last year the Food and Drug Administration tested the vitamin D value of imported codliver oil amounting to 900,000 gallons. He said that one-third of this codliver oil, or 300,000 gallons, was short in vitamin D, so it couldn't be allowed to enter the country, under the Food and Drugs Act. . . . Now what I'd like to know is how the Food and Drug Administration could tell that codliver oil was short in vitamin D."

All right, we'll answer the question. That is, our Washington correspondent will answer the question. She lives in Washington, near the laboratories of the Food and Drug Administration -- so she can give us a first-hand report of how codliver oil is tested for vitamin D. Here's her answer:

"Come with me," she writes, "to the air-conditioned laboratories -- and you can see for yourself how codliver oil is tested. You can see the experimental white rats -- the rats that live in pampered ease, in these air-conditioned rooms. They play a very important part, in helping the scientists to determine whether the codliver oil you buy contains at least as much vitamin D as the law requires, which is 85 units per gram.

"The white rats help the scientists test thousands of barrels of codliver oil, to make sure it contains as much vitamin D as the labels claim, or as much as the law requires. For the value of codliver oil, for poultry or for children, depends for the most part on how much vitamin D it contains.

"If you are giving codliver oil to your young children, you want to be sure that it contains enough vitamin D to prevent the disease of the bones known as rickets -- to prevent bone deformities and stunted growth, and to help teeth and bones develop normally. If you feed codliver oil to your poultry, then also you want a standard product that will make the young chicks grow and the hens lay eggs. Otherwise, you may lose a lot of hard-earned money.

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"And what is a unit of vitamin D? Well, the answer involves the 'line test,' often mentioned in connection with rickets. The bones, as you know, are made largely of two mineral elements -- calcium and phosphorus. If we think of bone building as a manufacturing process, we might call calcium and phosphorus the raw materials, and vitamin D the workmen. In order to make good strong bones, nature must have the right proportions of the raw materials -- calcium and phosphorus, and enough workmen, or vitamin D, to put them together. Otherwise the condition known as rickets may result.

"Now -- the line test. The rats cooperating in the line test are fed a diet which will produce rickets -- a diet which contains no vitamin D. In about three weeks, the rats have developed rickets. Now, will the codliver oil to be sampled cure this condition? Yes, if it contains enough vitamin D. For one week the rats are fed codliver oil from the sample under investigation. If it contains sufficient vitamin D, there will be enough healing in the bones for actual measurement.

"Doctor E. M. Nelson of the Food and Drug Administration would probably describe the 'line test' with pictures of the leg bones from experimental white rats. Or he might show you the leg bones themselves, after they had been made ready for the microscope. The normal bone is hard and rigid -- densely calcified. In the bone affected by rickets, nature has laid down new cells, but has deposited no calcium or phosphorus. The end of the diseased bone is not rigid.

"Now let's look at the bones in which healing has begun -- after vitamin D is included in the diet. Where the new cells are being laid down, that is, where healing takes place, a line appears across the bone. Hence the name 'line test.' If the quantity of vitamin D is increased, or if the period of the test is extended, the narrow continuous line of healing becomes wider, or complete healing of the bone may take place.

"Now, how do the Government chemists find the amount of vitamin D in the oils they test? By comparing them with a codliver oil of known vitamin-D content, called a standard. This standard codliver oil contains at least 85 units of vitamin D per gram.

"The standard is fed to one group of rats and the sample under test is fed at the same time to a similar group. If the degree of healing produced by the sample under test is equal to or greater than the degree of healing produced by the standard, the oil under test may be said to contain at least 85 units of vitamin D per gram. If claims for a higher potency are made, they can be checked in the same manner, by comparison with the standard.

"Thus does the Food and Drug Administration go about its job of protecting consumers from the substitution of low grade products for real codliver oil."
